

REMARKS

Reconsideration of this application is respectfully requested in view of the foregoing amendment and the following remarks.

Claims 1, 2, 6-11, and 13-17 were pending in this application. In this Amendment, claims 1, 10, 11, and 15-17 have been amended, and no claims have been canceled or added. Accordingly, upon entry of this Amendment, claims 1, 2, 6-11, and 13-17 will be pending.

In the Office Action mailed September 10, 2007, claims 11 and 12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,694,438 to Wang et al. ("Wang") in view of U.S. Patent No. 5,371,734 to Fischer ("Fischer"). Claims 1, 2, 6-10, and 13-15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Wang in view of WO 00/70811 to Haartsen ("Haartsen") and further in view of Fischer. Claims 16 and 17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Wang in view of Haartsen, further in view of WO 95/34960 to Pandula ("Pandula") and Fischer.

To the extent that these rejections might still be applied to the pending claims, Applicants respectfully traverse the rejections for the reasons set forth below. Each ground of rejection is treated below under a separate heading.

Rejection Of Claim 11 Under 35 U.S.C. § 103(a)

Regarding claim 11, Applicants have amended claim 11 to recite at least one feature not disclosed, taught, or suggested by the combination of Wang and Fischer. In particular, amended claim 11 recites a method in which redundant transmission of data from a (second) device occurs only if battery power exceeds a threshold, while the second device is configured to receive primary and redundant data packets in every data frame, even at low power. Applicants note that

each of the independent claims 1, 10, 13, and 15-17 include features similar to the additional features recited in amended claim 11.

Notably, the language in amendment claim 11 has been modified for consistency to conform with the language of amended claim 1. Both claims recite that data transmission and data reception occur during respective data transmission and data receive periods. Beyond these changes to claim 11, claim 11 has been modified to more clearly recite aspects of the invention to highlight distinctions over the cited art.

Amended claim 11, for example, recites a method for communicating data between a first device and a second device via a wireless frequency hopping digital communications link, comprising, among other steps, transmitting a third block of data from a second device to a first device during a third data transmission period of the first data frame, where the third block of data has not been previously transmitted; and transmitting, only if a battery level of the second device exceeds a predetermined threshold, a fourth block of data from the second device to the first device during a fourth data transmission period of the first data frame, where the fourth block of data was also transmitted by the second device during the data frame period immediately preceding the first data frame, wherein, even if the battery level of the second device does not exceed the predetermined threshold, the second device is further configured during every data frame to receive in the primary data receive period a block of digital data not previously received and configured to receive in the redundant data receive period a block of digital data received in the primary data receive period of an immediately prior data frame.

The claims have been amended to emphasize that the claimed invention operates to require that a second device be configured in *every data frame* to receive primary and redundant

copies of data even when the battery power is low, while preventing transmission of redundant data copies from the second device if the battery power is low. This mechanism can be helpful, for example, in preserving the lifetime of a portable device by restricting redundant transmission to situations in which battery power is high, while still increasing fidelity of reception at the portable device at all times. Support for this amendment can be found, for example, at the first full paragraph of page 14 of the specification.

The Examiner acknowledges that this feature is nowhere taught or suggested by Wang, which only discloses general features of frame structures for re-transmitting data packets. To support the rejection of the claims as previously presented, the Examiner relies upon the teachings of Fischer. However, as Applicants detail below, Fischer not only fails to teach the recited features missing from the teachings of Wang, but in fact, teaches away from the present invention, as recited in the former claims, and as more clearly recited in their amended form presented herein.

One aspect of Fischer is directed toward problems with battery life in MAC protocol systems (Abstract). Fischer explicitly states that:

A major obstacle to adequate battery life for battery-operated wireless network interfaces is that conventional MAC protocols . . . all assume that the network receivers are capable of receiving frames at all times that they are not actively transmitting. Consequently these MAC prior techniques are concerned only with controlling access to the network medium by transmitters. Because low-power, short-distance radio transceivers consume about as much electrical power in their receiving function as in their transmitting function, a useful protocol for battery operated networking must avoid this assumption, and *must concern itself with the access to the network medium by the receivers* as well as the transmitters.

(Fischer, column 4, line 56-column 5, line 3, with emphasis added, and ellipses added to indicate excised portions). Fischer addresses this problem by providing methods for transmitters *and receivers* to be depowered:

Due to the defined intervals of the communication cycle and the information conveyed by the hub, the remotes are able to power off their transmitters during times other than those intervals when the remote is allowed to transmit frames to the hub. *In addition, and very significantly, the remotes are able to power off their receivers during times other than those intervals when the remote is expected to receive frames from the hub.*

(Fischer, column 5, line 54-62, with emphasis added).

Thus, in contrast to the invention recited in the presently amended independent claims, which *require receivers to stay on* during primary and redundant data receive periods in every frame, Fischer is directed toward *maximizing the time when receivers are powered off*.

In rejecting claim 11, the Examiner relied on the following specific portions of Fischer (column 28, lines 43-48, shown below) as purportedly teaching that reception of redundant frames must continue regardless of power level:

As a minimum, each active remote must attempt to receive each information frame, and must attempt to receive the alternate information frame whenever it is unable to successfully receive the information frame, for a given communication cycle.

As a first matter, however, the above passage does not teach that redundant frames must continue regardless of power level. The “information frame” and “alternate information frame” referred to in the above passage are defined with respect to Figure 3 of Fischer (see also Fischer, column 11, line 56 to column 12, line5). Fischer therein discloses respective intervals 76 and 82 that occur during each communication cycle 70, during which intervals control information can

be sent from a hub to a remote device. The control information sent in interval 76 is repeated in interval 82. What the above passage teaches, therefore, is that an active remote device must attempt to receive information in interval 82 *if it determines that it is unable* to receive the information in interval 76 *for that communication cycle*.

In the context of the teachings of Fischer as a whole, the above passage merely means that a remote receiver should stay on to receive a repeated transmission of control information from a central hub for those communication cycles in which the initial transmission of the control information is not received. Nowhere does the above passage of Fischer require that redundant transmission be received in every communication cycle. This is a far cry from the feature recited in amended claim 11, wherein a second device is further configured *during every data frame* to receive in the primary data receive period a block of digital data not previously received and configured to receive in the redundant data receive period a block of digital data received in the primary data receive period of an immediately prior data frame.

Otherwise, as noted above, one of ordinary skill in the art would appreciate that Fischer teaches that receivers should be powered down to save power. Thus, Fischer not only fails to disclose the claimed feature noted above, but also teaches away from the claimed system and method that requires the device being powered on in primary and redundant receive periods of every frame.

Accordingly, claim 11, as well as dependent claim 12 is patentable over Wang in view of Fischer.

Rejection Of Claims 1, 2, 6-10, and 13-15 Under 35 U.S.C. § 103(a)

Similarly to claim 11 discussed above, independent claims 1, 10, and 15 have each been amended to recite a system or method in which redundant transmission of data from a device occurs only if battery power exceeds a threshold, while redundant reception of data packets is required in every data frame, even at low power. This feature is already substantially recited in claim 13 (even if the battery level of the second device does not exceed the predetermined threshold, the second device is configured to receive the first data block and the second block within each frame), which accordingly has not been amended herein.

The Examiner acknowledges that such a feature is absent from the teachings of Wang or Haartsen, and relies upon the same teachings of Fischer used to reject claim 11. Thus, the combination of Wang, Haartsen, and Fischer must fail to render obvious claims 1, 10, 13, and 15, as well as dependent claims 2, 6-9, and 14, for the same reasons set forth above with respect to claim 11.

Rejection Of Claims 16-17 Under 35 U.S.C. § 103(a)

Similarly to the other independent claims discussed above, independent claims 16 and 17 have been amended to recite a method in which redundant transmission of data from a device occurs only if battery power exceeds a threshold, while redundant reception of data packets is preserved in every data frame, even at low power. Each of Wang, Haartsen, and Pandula fails to teach or suggest this feature. Nor has the Examiner suggested that any of these references teach such a feature, but relies upon the same teachings of Fischer as used to reject claim 11. Thus, the combination of Wang, Haartsen, Pandula, and Fischer must fail to render obvious claim 16-17.

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Accordingly, Applicants respectfully request that the rejection of claims 16 and 17 be withdrawn.

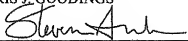
In view of the foregoing, all of the claims pending in this case are believed to be in condition for allowance. Should the Examiner have any questions or determine that any further action is desirable to place this application in even better condition for issue, the Examiner is encouraged to telephone Applicant's undersigned representative at the number listed below.

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Respectfully submitted,
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